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[From the Proceedings of the Cal. Academy of Sciences, August 18, 1873.]

Description of a New Genus and Species of Alcyonoid Polyp.

BY ROBERT E. C. STEARNS.

At a meeting of the California Academy of Sciences, held on the third day of February, 1873, a paper was read by me, entitled "Remarks on a New Alcyonoid Polyp, from Burrard's Inlet;" * in which I gave a *resumé* of the discussions, notices, etc., in this country and in England, arising from the examination by several naturalists, of certain "switch"-like forms, which had been received by different parties from the Gulf of Georgia (more particularly from Burrard's Inlet, in said gulf); several specimens of said "switches" being in the Museum of the California Academy.

These "switches," or rods, were referred by Dr. Gray, of the British Museum, to his genus "Osteocella," and by Mr. Sclater's correspondent stated to belong to "a sort of fish;" but by the majority of scientific gentlemen who had seen these "switches" they were regarded as belonging to a species of Alcyonoid Polyp. I expressed the belief that they belonged to a species of *Umbellularia.*

At a meeting of the California Academy, held on the evening of August 4, 1873, Dr. James Blake presented a specimen of the polyp of which these so-called switches are the axes, which had been sent to him from the Gulf of Georgia by his friend, Capt. Doane. This specimen was one of six or seven sent at the same time, all of which were in a tolerable state of preservation, though, as might have been anticipated, the more delicate tissues of the polyps are somewhat decomposed, and some of the specimens are in some places lacerated. They all are, however, sufficiently perfect to determine the true position, and show that the "switches" are, as was supposed, the supporting stalks or axes of an Alcyonoid Polyp "related or pertaining to the group *Pennatulidæ.*"

At the last meeting I referred the specimen before the Academy to that division of the *Pennatulidæ* known as *Virgularia*, but upon a subsequent examination of the authorities, I find that those forms in which the axis is unilateral, or on one side, come within the Genus *Pavonaria* of Cuvier.

The only species heretofore described so far as I can learn, and on which this genus is based is *P. quadrangularis*, of which a lengthy and interesting description from Prof. Forbes, is given in Johnston's British Zoöphytes (Vol. I, pp. 164–166). In that species however, the axis is "acutely quadrangular" and the polyps are arranged in three longitudinal series, corresponding to three of the "angles of the stem."

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* *Vide* Proceed. Cal. Acad. Sciences, Vol. V., Part I., pp. 7–12.

In the specimen presented by Dr. Blake the style or axis is round and the polyps are arranged in two longitudinal unilateral series, which conform to the convexity of the external fleshy covering. With these differences, I think I am justified in placing it in a new sub-genus for which I propose the name of *Verrillia* in honor of Prof. Verrill of Yale College.

Genus PAVONARIA, Cuvier.

Sub-genus VERRILLIA, Stearns.

Polypidom linear-elongate, round, oval or ovate in cross-section. Axis round, slender, bony; polyps arranged in two unilateral longitudinal series.

Verrillia Blakei, Stearns; n. s.

Polyp-mass or polypidom, of a flesh or pink color, linear, elongate, attenuate; polypiferous portion about three fourths of the entire length, rounded oval to ovate-elliptic in cross section, and from three fourths to one inch in greatest diameter, flatly tapering toward the tip, as well as decreasing in the opposite direction to where the polypiferous rows terminate or become obsolete. From this latter point to the beginning of the base or root, a portion of the polypidom, equal to about one sixth of its entire length, is quite slender, being only about twice the diameter of the naked axis, and the surface quite smooth; said portion, as well as the base, is round (in cross section); the basal part is from one ninth to one eleventh of the entire length, and about one inch in diameter, with the surface longitudinally wrinkled or contracted, presenting a ridged or fibrous appearance.

Style or axis long, slender, white, hard, bony, somewhat polished, about three sixteenths (3-16) of an inch in diameter in the thickest part, tapering gradually toward the tip, and attenuated, with surface somewhat roughened toward the basal extremity. Inclosed in the polyp-mass or polypidom, the axis is central from the base to where the polyp-rows begin, when it soon becomes marginal or lateral, forming a prominent rounded edge (free from polyps) on one side of the polypiferous portion of the whole.

From near the sides of the axial edge the polyp-rows start, and run obliquely upward to the opposite side, where they nearly meet, presenting, when that side is observed from above, a concentric chevron or Λ-like arrangement, modified by the convexity of the polypidom. The more conspicuous polyp-rows show from nine to fourteen polyps, with occasional intermediate rows of three or more polyps.

The length of the most perfect of Dr. Blake's specimens was sixty-six (66) inches; of which, commencing at the tip, a length of forty-eight and a quarter ($48\frac{1}{4}$) inches was occupied by the polyp-rows, which numbered two hundred and forty-five (245), or twice that number when both sides or arms of the chevron or Λ are considered. The number of polyps in each row was, in this specimen, from eight (8) to eleven (11), with occasional intermediate shorter rows of from three (3) to seven (7). Estimating ten to the row, this specimen exhibited about *five thousand* polyps, all of which, as well as the polyps in the other specimens, were filled with ova, of an orange color. In the next section of this specimen, the length between the last polyp-row and the swell of the base or root, is

eleven and one quarter (11¼) inches; thence to the termination of the base, six (6) inches.

The average dimensions of thirty-six (36) of the axes in the Museum of the California Academy is five feet six and one third inches in length, and the diameter of the largest, nine thirty-seconds of an inch; diameter of smallest specimen, one sixteenth of an inch.

Dr. Blake's specimens were preserved in a mixture of glycerine and alcohol, and the more delicate tissue of the polyps appears to have been somewhat injured by the latter ingredient.

Additional specimens of the above species, from the same locality, have been received from J S. Lawson, Esq., of the U. S. Coast Survey, by George Davidson, Esq., President of the Academy. These latter were put in glycerine only, and are in better condition than those received by Dr. Blake.

Of the specimens received from Mr. Lawson, some individuals are younger than either of Dr. Blake's. In these the polyp-rows are farther apart, and there are not so many polyps in the row; neither do the ends of the rows approximate so closely on the side opposite the axial edge; the polyps being not nearly so many in the same length, or presenting (as do some of Dr. Blake's specimens) so crowded an appearance. In cross-section through the polypiferous portions, the younger individuals are less oval or acutely-ovate than in the older specimens. A comparison of individuals indicates an external differentiation, analagous to that displayed by specimens of the same species in Virgularia. The general aspect of this species, judging from the figure in Plate XXXI. of Johnston's British Zoophytes (2d ed.), is like *P. quadrangularis* from Oban, only in that species the rows of polyps it is stated, are composed of "four, five or six polyps in a row," one figure showing seven.

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